



US005235749A

United States Patent [19]

Hildebrand et al.

[11] **Patent Number:** 5,235,749[45] **Date of Patent:** Aug. 17, 1993[54] **SHAVING APPARATUS**

[75] **Inventors:** Gerhard Hildebrand, Steinbach;
 Gunther Seidel, Frankfurt/M.;
 Hans-Eberhard Heintke,
 Wächtersbach; Klaus Ramspeck,
 Langen; Reinhold Eichhorn,
 Idstein-Kröftel; Helmut Dürr,
 Frankfurt/M.; Wolfgang Franke,
 Langen; Gebhard Braun, Kelkheim;
 Manfred Ohle, Walldürn; Roland
 Ullman, Offenbach/M., all of Fed.
 Rep. of Germany

[73] **Assignee:** Braun Aktiengesellschaft, Frankfurt,
 Fed. Rep. of Germany

[21] **Appl. No.:** 931,858

[22] **Filed:** Aug. 18, 1992

[30] **Foreign Application Priority Data**

Aug. 26, 1991 [DE] Fed. Rep. of Germany 4128218

[51] **Int. Cl.⁵** B26B 19/02; B26B 19/00;
 B26B 21/14

[52] **U.S. Cl.** 30/43.92; 30/43.1;
 30/89

[58] **Field of Search** 30/34.1, 43.1, 43.2,
 30/43.3, 43.92, 89

[56] **References Cited****U.S. PATENT DOCUMENTS**

3,279,056 10/1966 Andis .
 3,763,558 10/1973 Bauerle 30/43.1
 4,505,036 3/1985 Ochiai et al. 30/89

4,796,359 1/1989 Oprach et al. 30/89
 4,922,608 5/1990 Pahl 30/34.1
 4,930,217 6/1990 Wolf et al. 30/43.1
 4,941,259 7/1990 Wolf 30/43.1
 5,159,755 11/1992 Jestadt et al. .

FOREIGN PATENT DOCUMENTS

3610736C2 3/1986 Fed. Rep. of Germany .
 3926894C1 8/1989 Fed. Rep. of Germany .
 506817 6/1937 United Kingdom .
 1175459 12/1969 United Kingdom .

OTHER PUBLICATIONS

Pending U.S. Ser. No. 07/829,068, filed Feb. 6, 1992.

Primary Examiner—Frank T. Yost

Assistant Examiner—Paul M. Heyrana, Sr.

Attorney, Agent, or Firm—Fish & Richardson

[57] **ABSTRACT**

The invention is directed to an electric shaving apparatus having a housing and a shaving head assembly which is adapted to pivot relative to the housing about a pivotal axis Z and is comprised of a shaving head frame, a shaving plane formed by at least one outer cutter having arcuate extensions to the longitudinal sides of the shaving head frame, and of at least one inner cutter operatively associated with the outer cutter and driven by a drive mechanism, wherein the outer cutter is arranged in an outer cutter frame member and the outer cutter frame member is mounted in the shaving head frame so as to be pivotal about the pivotal axis Z.

15 Claims, 4 Drawing Sheets